**Using the Semantic Priming Project to Understand Variability in Priming**

**Variable List Handout**

Dependent variables:

* Example first associate: below – above
* Example other associate: upstairs – above

Independent variables:

* Lexical Variables: variables with T indicate Target variable, P indicate Prime variable
  + Word Frequency – Log frequency value from the English Subtitle Norms
  + Length – number of characters in a word
  + Orthographic Neighborhood – number of words that can be made from changing one letter of the word
  + Phonographic Neighborhood – number of words that can be made from changing one sound of the word
  + Part of Speech (Noun, Verb, Other) – each part of speech was compared against nouns
* Association Variables
  + Small World of Words Forward Strength (FSG) – the probability of the target word given the prime word. These values were taken from the three response options available from SWOW.
  + Pointwise mutual information Forward Strength (PMI) – PMI is the probability of prime and target given the individual probabilities of prime and target from SWOW.
  + Cue Set Size (FSG.SS) – number of responses for a given prime word in SWOW, or how many FSG values a word has.
  + Response Set Size (FAN.SS) – number of cues for a given target word in SWOW, or how many times a target word was used in response to a cue.
* Semantic Variables
  + Cosine – the cosine value between prime and target feature set lists (akin to a correlation or the feature overlap between lists) from the Buchanan et al. norms.
  + Pointwise mutual information cosine – PMI for cosine values.
  + Feature Set Size (FSS) – Number of features for a prime or target word from a feature production task.
  + Cosine Set Size (CSS) – Number of cosine values for the prime and target words (separately). These values are the same going in and out (unlike FSG above).
* Thematic Variables
  + Distance – Cosine value taken from a continuous bag of words model provided by Mandera et al. as part of SNAUT.
  + Latent Semantic Analysis – cosine value based on LSA English 300 vectors as provided in SPP.
  + Pointwise mutual information Beagle – PMI values from Beagle model as provided in SPP.

Relevant References for Models and Variables:

Brysbaert, M., & New, B. (2009). Moving beyond Kučera and Francis: A critical evaluation of current word frequency norms and the introduction of a new and improved word frequency measure for American English. *Behavior Research Methods*, *41*(4), 977–990. https://doi.org/10.3758/BRM.41.4.977

Buchanan, E. M., Holmes, J. L., Teasley, M. L., & Hutchison, K. A. (2013). English semantic word-pair norms and a searchable Web portal for experimental stimulus creation. *Behavior Research Methods*, *45*(3), 746–757. https://doi.org/10.3758/s13428-012-0284-z

Buchanan, E. M., Valentine, K. D., & Maxwell, N. (2018, October 2). English Semantic Feature

Production Norms: An Extended Database of 4,436 Concepts. Retrieved from

osf.io/cjyzw

De Deyne, S., Navarro, D. J., Perfors, A., Brysbaert, M., & Storms, G. (2018). Measuring the associative structure of English: The “Small World of Words” norms for word association. *BioRxiv*, 1–26. Retrieved from http://compcogscisydney.org/publications/DeDeyneNPBS\_swow.pdf

Hutchison, K. A., Balota, D. A., Neely, J. H., Cortese, M. J., Cohen-Shikora, E. R., Tse, C.-S., … Buchanan, E. M. (2013). The semantic priming project. *Behavior Research Methods*, *45*(4), 1099–1114. https://doi.org/10.3758/s13428-012-0304-z

Jones, M. N., & Mewhort, D. J. K. (2007). Representing word meaning and order information in a composite holographic lexicon. *Psychological Review*, *114*(1), 1–37. https://doi.org/10.1037/0033-295X.114.1.1

Landauer, T. K., & Dumais, S. T. (1997). A solution to Plato’s problem: The latent semantic analysis theory of acquisition, induction, and representation of knowledge. *Psychological Review*, *104*(2), 211–240. https://doi.org/10.1037//0033-295X.104.2.211

Mandera, P., Keuleers, E., & Brysbaert, M. (2017). Explaining human performance in psycholinguistic tasks with models of semantic similarity based on prediction and counting: A review and empirical validation. *Journal of Memory and Language*, *92*, 57–78. https://doi.org/10.1016/j.jml.2016.04.001